

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF VIRGINIA
Charlottesville Division**

<p>BONUMOSE BIOCHEM LLC, a Virginia limited liability company, and BONUMOSE LLC, a Virginia limited liability company</p> <p style="text-align: center;">Plaintiff,</p> <p>vs.</p> <p>YI-HENG PERCIVAL ZHANG, individually, and CELL-FREE BIOINNOVATIONS, INC., a Virginia corporation,</p> <p style="text-align: center;">Defendants.</p>	<p style="text-align: center;">SECOND AMENDED COMPLAINT</p> <p>Civil Action No. 3:17-cv-00033</p> <p>Judge Norman K. Moon</p>
<p>CELL-FREE BIOINNOVATIONS, INC., a Virginia corporation, and DR. YI-HENG PERCIVAL ZHANG, an individual,</p> <p style="text-align: center;">Counterclaimants,</p> <p>vs.</p> <p>BONUMOSE BIOCHEM LLC, a Virginia limited liability company, EDWIN O. ROGERS, an individual and TEREBINTH STRATEGIC MANAGEMENT, LLC,</p> <p style="text-align: center;">Counterclaim Defendants.</p>	

Plaintiffs Bonumose Biochem LLC (“Bonumose Biochem”), a Virginia limited liability company, and Bonumose LLC (“Bonumose”) (collectively the “Bonumose Entities”) assert the following against defendants Dr. Yi-Heng Percival Zhang (“Zhang”) and Cell-Free Bioinnovations, Inc. (“CFB (collectively “Defendants”).

NATURE OF ACTION

1. The Bonumose Entities own contract rights and valuable confidential and trade secret information relating to the enzymatic production of D-tagatose, a naturally occurring monosaccharide (“Tagatose”), from low-cost feedstocks such as starch. The Bonumose Entities obtained some of those rights through a transaction in April of 2016 with Zhang and CFB. After the April 2016 transaction, Defendants Zhang and CFB breached their contractual obligations to the Bonumose Entities by providing the confidential information and trade secret information acquired by the Bonumose Entities to the Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences, a state operated research arm of the People’s Republic of China (“Tianjin Institute”) and by failing to take other contractually required actions. The Tianjin Institute used the confidential information provided by Zhang and CFB to file a copycat patent in China based on the Bonumose Entities’ confidential intellectual property, causing the Bonumose Entities to incur significant costs and damages.

2. Even if Defendants Zhang and CFB assert they disclosed the information to Tianjin Institute prior to April 2016 transaction, Zhang and CFB would remain liable for having breached contractual warranties, contractual obligations to not assist the Bonumose Entities competitors, and concealed material facts.

3. Further, Defendants concealed or misrepresented material facts, including but not limited to, the following: (1) Zhang had been operating as paid agent of the Tianjin Institute since at least 2014, (2) Zhang (as the controlling member of CFB) never intended to allow CFB to fulfill the contractual obligations owed to the Bonumose Entities, and (3) Zhang and CFB had been engaged since at least 2014 in activities with the Tianjin Institute to take intellectual property developed in the United States and exploit that intellectual property for profit in the Peoples Republic of China (“PRC”).

4. Seeking damages, the Bonumose Entities bring claims for breach of contract, misappropriation of trade secrets under state and federal law, conversion, and fraud.

PARTIES

5. Plaintiff Bonumose Biochem, a Virginia limited liability company with its headquarters in Charlottesville, Virginia, obtained contractual rights from CFB and Zhang (collectively “AASA Rights”), including confidential information and trade secrets relating to proprietary processes for the enzymatic production of Tagatose (generally “Tagatose Trade Secrets”). The Tagatose Trade Secrets and other AASA rights are of significant economic value.

6. Plaintiff Bonumose, is a Virginia limited liability company with its headquarters in Charlottesville, Virginia. Plaintiff Bonumose was formed by Bonumose Biochem in October 2017 to facilitate an investment by third-parties. Plaintiff Bonumose Biochem has transferred certain rights under the AASA relevant to this litigation to Plaintiff Bonumose.

7. Defendant Zhang is a United States citizen residing in Virginia who acted as an unregistered agent for Tianjin Institute – an arm of the Chinese government – since at least 2014.

8. Defendant CFB is a Virginia corporation formed by Zhang and others in 2012 for the purpose of developing in vitro synthetic biology. CFB’s principal office is in Blacksburg, Virginia. Zhang controls CFB as the majority shareholder, Chairman of the Board, Chief Science Officer (“CSO”), President, and CEO.

9. Subsequent to CFB’s transaction with Bonumose Biochem, CFB has been operated as the alter ego of Zhang. Defendant Zhang has operated CFB in a manner in which his personal interests supersede CFB’s corporate interests. CFB has been operated in a manner which is not separate from Zhang’s personal interests, but is contrary to the interests of other CFB shareholders. Zhang has directed CFB to take wrongful or fraudulent actions.

JURISDICTION AND VENUE

10. This is an action under Section 1836, Title 18 of the United States Code. Accordingly, the Court has jurisdiction under 28 U.S.C. §§ 1331, 1367, and 2201-2202.

11. This Court has personal jurisdiction over Defendant Zhang because he transacts, or has in the recent past transacted, business in the Western District of Virginia, has committed wrongful acts within this district, and has caused the Bonumose Entities injury within this district.

12. This Court has personal jurisdiction over Defendant CFB because it transacts, or has in the recent past transacted, business in the Western District of Virginia, has committed wrongful acts within this district, and has caused Bonumose Entities injury within this district.

13. Venue is proper in the Western District of Virginia under 28 U.S.C. §§ 1391(b) and/or (c).

GENERAL ALLEGATIONS BENEFITS AND VALUE OF TAGATOSE

14. Tagatose is a naturally occurring sugar found in low concentrations in some grains, fruits, dairy, and the cacao tree. Although having nearly the same sweetness as sucrose (table sugar), Tagatose (a) is lower in calories, (b) does not create health issues often linked to excess sucrose consumption such as diabetes, obesity, or tooth decay, and (c) has multiple other health benefits absent from sucrose.

15. Traditionally, Tagatose has not been used widely owing to the high costs of commercial production.

16. Owing to the widespread health problems linked to the overconsumption of sucrose and related sweeteners, as well as drawbacks of many sugar alternatives, there is a tremendous demand for the commercialization of natural alternatives to sucrose. If the costs of producing Tagatose can be reduced, there is a multi-billion-dollar annual global market for the

product. The Bonumose Entities estimate the annual market for low-cost Tagatose in the PRC alone is more than \$250,000,000.

CHINESE EFFORTS TO OBTAIN INTELLECTUAL PROPERTY FROM UNITED STATES

17. This lawsuit occurs against the backdrop of increasing warnings from intelligence agencies of the United States regarding systematic efforts underway to take intellectual property developed in the United State to the PRC for commercialization. *See, e.g.,* <https://www.reuters.com/article/us-usa-security-china/u-s-senators-concerned-about-chinese-access-to-intellectual-property-idUSKCN1FX23M> (FBI Director warns Senate Intelligence Committee regarding efforts by PRC to infiltrate American universities).

ZHANG'S COLLABORATION WITH THE TIANJIN INSTITUTE

18. While working as a professor at Virginia Tech from 2014 until his separation in 2017, Zhang recruited, mentored, and collaborated with a group of doctoral students and post-doctoral students from the PRC who worked concurrently for Virginia Tech and CFB and are now working at or are currently connected to the Tianjin Institute ("CFB/Tianjin Group"). Zhang directed the actions of the CFB/Tianjin Group while they worked at Virginia Tech and at CFB. After the CFB/Tianjin Group returned to the PRC, Zhang continued to provide them with information and collaborated with them to take intellectual property developed in the United States and commercialize that intellectual property in the PRC.

19. As set forth below, Zhang's direction and actions with the CFB/Tianjin Group establish, among other things, that (1) Zhang and CFB engaged in wrongful activity that was concealed from Bonumose Biochem, and (2) that Zhang and CFB wrongly disclosed the Tagatose Trade Secrets to the Tianjin Institute.

20. Zhiguang Zhu ("Zhu") is a member of Zhang's CFB/Tianjin Group. Zhu, a Chinese National, worked for Zhang at Virginia Tech, worked under the direction of Zhang at CFB, and currently works for the Tianjin Institute. While working under the direction of Zhang

at CFB, Zhu concealed that he was concurrently acting with Zhang to further the Tianjin Institute's interests in violation of their duties to CFB.

21. Chun You, is also a member of Zhang's CFB/Tianjin Group. Zhang recruited Chun You to do post-doctoral work at Virginia Tech. Later, Zhang recruited Chun You to work at CFB. Then, Zhang helped Chun You secure employment with the Tianjin Institute. While working under the direction of Zhang at CFB, Chun You concealed that he was concurrently acting with Zhang to further the Tianjin Institute's interests in violation of their duties to CFB.

22. Since 2012, Zhang has been an employee for CFB.

23. On or about, May 8, 2013, Zhang signed a Business Protection Agreement with CFB ("Zhang Business Protection Agreement").

24. The terms of the Zhang Business Protection Agreement are binding on Zhang.

25. The Zhang Business Protection Agreement obligated and continues to obligate Zhang to keep CFB's propriety information and trade secrets confidential and broadly assigned inventions and intellectual property developed by Zhang to CFB. The Zhang Business Protection Agreement also required Zhang to disclose and get approval for any conflicts of interest or competitive work.

26. In 2013, Zhang brought members of the CFB/Tianjin Group on as employees of CFB.

27. In April of 2013, Zhang brought on Chun You as a scientist at CFB. As employee of CFB, Chun You owed duties of loyalty to keep proprietary information and trade secrets confidential. Having worked at CFB, Chun You is obligated to terms and restrictions of a Business Protection Agreement, including a continuing obligation propriety information and trade secrets, including the Tagatose Trade Secrets, confidential. The Business Protection Agreement also required Chun You to disclose and get approval for any conflicts of interest or competitive work. Furthermore, in federal grant applications in which Chun You was the

principal investigator, Chun You and CFB affirmatively represented their obligations of “IP protection.”

28. In July of 2013, Zhang hired Zhu as Chief Technology Officer at Cell-Free. Zhu is subject to the same common law duty of loyalty and obligations regarding confidentiality under the standard Business Protection Agreement, including keeping the Tagatose Trade Secrets Confidential. In March of 2014, the Tianjin Institute retained Zhang as a research fellow. Zhang did not disclose his relationship and competing obligations to Virginia Tech.

29. On or around August 26, 2014, the Tianjin Institute met and approved a direct employment agreement with Zhang. At all times relevant to this lawsuit, Zhang was subject to this employment agreement with the Tianjin Institute.

30. Zhang’s agreement with the Tianjin Institute dated October 1, 2014, requires Zhang to be responsible for the following:

- “1. Responsible for the discipline direction, core technology research and development and the development of research rules for the research institute’s *in vitro* synthetic biology;
- 2. Responsible for team construction and application and implementation of major scientific research projects for the organization’s *in vitro* synthetic biology area;
- 3. Responsible for patent applications and technology industry transformations for the research institute’s *in vitro* synthetic biology results, and achieve transformation and transfer of 2-3 science and technology achievements in 3-4 years;
- 4. Responsible for cultivation of young talents in related disciplines and technical fields.”

31. The Tagatose Trade Secrets at issue in this litigation fall within the category of in vitro synthetic biology.

32. Zhang did not disclose to Virginia Tech or to – supposedly his primary employer in this time period – his relationship and obligations to Tianjin Institute.

33. In October 28, 2014, while he was subject to undisclosed, conflicting duties to the Tianjin Institute, Zhang recruited Ed Rogers to work as CEO for CFB. As part of Zhang's recruiting pitch to Rogers, Zhang represented to Rogers that CFB owned intellectual property relating to several products including sugar battery and "healthy sweeteners (D-tagatose), nutrient (inositol), etc."

34. Zhang and CFB concealed Zhang's, Zhu's, and Chun You's conflicting obligations to the Tianjin Institute from Rogers.

35. On January 1, 2015, Rogers began to perform services for CFB as a part-time, interim CEO.

36. In January 29, 2015, the Tianjin Institute provided directives to its employees Zhang and Chun You to obtain advancements regarding cellulose-to starch, rare sugars, functional sugars, and inositol. Zhang and Chun You concealed this conflict of interest from Rogers. Zhang and CFB concealed this fact from Rogers and Bonumose Biochem.

37. In February of 2015, the Tianjin Institute named Chun You to its Thousand Talents Program. Zhang and CFB concealed this information from Rogers and Bonumose Biochem.

**ZHANG PROMOTES CHUN YOU OBLIGATING CHUN YOU AGAIN TO THE
TERMS OF A BUSINESS PROTECTION AGREEMENT**

38. At or around the time Chun You was being elevated to the PRC's Thousand Talents Program and was getting directions from the Tianjin Institute to deliver intellectual property relating to the manufacture of inositol, Zhang directed CFB to give Chun You a promotion, raise, and \$11,000 bonus. In a letter dated February 6, 2015, to Chun You ("2015

Chun You Employment Agreement”), Zhang, on behalf of CFB, elevated Chun You to the role of Principal Scientist and stated that Chun You would report directly to Zhang and Zhu.

39. Zhang signed the 2015 Chun You Employment Agreement on behalf of CFB.

40. In the 2015 Chun You Employment Agreement, Zhang wrote Chun You’s new position, salary and bonus were “subject to your agreement to the terms and conditions contained in this letter agreement and your execution of the Company’s standard confidentiality and non-competition agreement, (the “**Business Protection Agreement**”).”

41. The 2015 Chun You Employment Agreement with CFB expressly states that Chun You “will hold in a fiduciary capacity for the benefit of the Company all . . . proprietary and confidential information acquired by [him].”

42. The 2015 Chun You Employment Agreement also prevented Chun You from engaging in business or private services to any business, other than CFB, without CFB’s written consent.

43. The 2015 Chun You Employment Agreement also required that Chun You warrant that he was not subject to any other agreements that would interfere with his obligations to CFB.

44. The 2015 Chun You Employment Agreement also required,

Upon the termination of your employment with the Company and prior to your departure from the Company, you agree to submit to an exit interview for the purposes of reviewing this letter agreement, the enclosed Business Protection Agreement and the trade secrets of the Company, and surrendering to the Company all proprietary or confidential information and articles belonging to the Company.

45. Zhang was responsible for getting Chun You to sign the documents.

46. On information and belief, Chun You countersigned the 2015 Chun You Employment Agreement signed by Zhang and executed the attached Business Protection Agreement and provided these documents to Zhang.

47. In the alternative, if Zhang failed (purposefully or not) to obtain a signed copy of the 2015 Chun You Employment Agreement and/or Business Protection Agreement, Chun You bound himself to the terms or estopped himself from denying the terms of the Chun You Employment Agreement and Business Protection Agreement by accepting the promotion, pay raise, and \$11,000 bonus.

48. In late February of 2015, Zhang and CFB directed CFB employees to prepare certain confidential materials for transport in early March of 2015.

49. Zhang took the confidential materials to the Tianjin Institute in early March of 2015. On information and belief, the materials provided to the Tianjin Institute were relevant to the development of the Inositol intellectual property that Zhang was bound to keep confidential. Zhang concealed the fact of this transport from Rogers and from Bonumose Biochem.

50. At or around the time the confidential materials were transported by Zhang to the PRC, Zhang directed CFB to pay a \$11,000 bonus to Chun You using federal grant funds even though Zhang intended to use Chun You's services to further Zhang's plan to commercialize the inositol intellectual property in China, in collaboration with Tianjin Institute.

51. When Zhang chose to promote, provide a salary increase, and bonus to Chun You on behalf of CFB, Zhang knew that Chun You (1) was a member of the Tianjin Institute's Thousand Talents Program, (2) had been directed to acquire or develop intellectual property, including intellectual property relating to the conversion on inositol, and (3) owed obligations to the Tianjin Institute incompatible with and in violation of his obligations and warranties under his 2015 Employment Agreement and Business Protection Agreement with CFB. Zhang and CFB concealed these facts from Rogers and from Bonumose Biochem.

52. When Zhang gave Chun You a promotion, a salary increase, and a bonus, Zhang did so to obtain Chun You's assistance in fulfilling Zhang's efforts to develop and transfer intellectual property from work done at Virginia Tech or at CFB to the Tianjin Institute or other

agencies of the PRC to satisfy Zhang's obligations to those entities and to benefit Zhang financially.

53. Zhang did not disclose to Rogers his improper purposes relating the employment and compensation of Chun You

54. On or about June 15, 2015, Zhang and CFB continued to express satisfaction with Rogers' performance as interim CEO for CFB. At Zhang and CFB's request, Rogers' compensation and time commitment to CFB was increased.

WICHELECKI TAGATOSE INVENTION

55. On or about July 1, 2015, CFB hired Dr. Daniel Wichelecki as a Senior Scientist. Shortly after being hired, Dr. Wichelecki invented certain processes relating to the enzymatic production of Tagatose that were materially different than the processes CFB previously had considered ("Tagatose Invention"). Critical to the Tagatose Invention, Dr. Wichelecki discovered a new way to convert fructose 6-phosphate to tagatose 6-phosphate, and tagatose 6-phosphate to tagatose. Using two unique enzymes, Dr. Wichelecki created a complete enzymatic pathway for the production of high-yields of tagatose from low-cost feedstocks such as starch. Dr. Wichelecki's Tagatose Invention is a central component of the Tagatose Trade Secrets.

56. Zhang repeatedly expressed his belief that Wichelecki's Tagatose Invention was a new discovery with significant economic value.

57. At or around September 1, 2015, Zhang and CFB continued to express satisfaction with Rogers' performance as interim CEO. At the request of Zhang and CFB, Rogers agreed to increase his time commitment and serve as a full-time CEO of CFB.

58. On October 2, 2015, based on Dr. Wichelecki's Tagatose Invention, CFB filed a U.S. provisional patent application for "Enzymatic Synthesis of D-Tagatose" ("Provisional Patent Application"). Dr. Wichelecki was the lead inventor, and Zhang was named as a co-

inventor. Dr. Wichelecki's and Zhang's respective shares of the invention were owned by CFB under their respective employment contracts with CFB.

59. The Provisional Patent Application was not published. CFB (and, subsequently, the Bonumose Entities) kept as confidential and maintained as trade secrets the information within the Provisional Patent Application that constituted Tagatose Trade Secrets.

60. The Tagatose Trade Secrets included, but were not limited to:

- A. the identity of the two key enzymes making the enzymatic pathway viable;
- B. the novel enzymatic pathway for producing Tagatose from starch and the method of using the key enzymes in the pathway;
- C. the methods Dr. Wichelecki used to verify and optimize the novel enzymatic pathway; and
- D. the information about two obscure academic papers which contained hard-to-follow clues about the identity of the key enzymes.

61. The Tagatose Trade Secrets were protected by both CFB and the Bonumose Entities. CFB and the Bonumose Entities protected the Tagatose Trade Secrets in several ways, including, but not limited to, these steps: (a) limiting employee access to sensitive information, (b) requiring non-disclosure agreements ("NDAs") with employees and third-parties, and (c) the use of passwords and other protections to prevent access by third-parties.

62. In early December of 2015, Zhang and Chun You along with some CFB/Tianjin Members were developing business plans to transfer or share the Tagatose Trade Secrets with the Tianjin Institute and work to commercialize the Tagatose Trade Secrets in the PRC. Zhang and CFB concealed this information from Rogers and Bonumose Biochem.

63. On or about March 11, 2016, Chun You resigned as Principal Scientist for CFB. When Chun You resigned, Zhang was the President, CSO, and CEO of CFB and Chun You's supervisor.

64. Based on the 2015 Chun You Employment Agreement, Zhang or CFB was to meet with Chun You to reiterate his obligations under his employment and Business Protection Agreement. To the extent Zhang or CFB had previously failed to get Chun You's signature on the 2015 Employment Agreement and Business Practices Agreement, Zhang and CFB were obligated get Chun You's signature

65. In or around November of 2015, Rogers began to have concerns that Zhang was diverting intellectual property previously represented by Zhang to be owned by CFB to the PRC for commercialization. Rogers raised the concerns with Zhang and explained that Zhang was directing the filing of grants on behalf of CFB which represented to federal agencies that CFB owned intellectual property that Zhang now was asserting was owned exclusively by him.

66. Prior to Rogers raising questions regarding Zhang's ownership of intellectual property previously represented to be owned by CFB, Zhang had never been critical of Rogers' job performance.

67. After Rogers raised the ownership questions, Zhang actively sought to remove Rogers from CFB. Zhang had Rogers removed as CEO of CFB in December of 2015.

68. After months of negotiations, between Rogers and Zhang, who controlled CFB, they reached an agreement (April 2016 Agreement) relating to the transfer of rights held by CFB and Zhang to Bonumose Biochem, a company founded by Rogers and Dr. Wichelecki to pursue, among other things, the commercialization of the Tagatose Trade Secrets.

69. Under the April 2016 Agreement, Bonumose Biochem acquired certain intellectual property rights, including the Tagatose Trade Secrets and confidential information relating to the Tagatose Invention, from Zhang and CFB.

70. Under the April 2016 Agreement, Zhang and CFB agreed, among other things to the following:

A. “[N]ot to compete against BONUMOSE, or its successors, assigns or licensees, with respect to the ASSIGNED ASSETS. For purpose of clarification but not limitation, CFB and Zhang agree not to compete against BONUMOSE, or its successors, assigns or licensees, in the production of Tagatose or Sugar Phosphates (including FBP) from starch, sucrose, cellulose, or degradation products thereof, or to assist or cooperate with competition against BONUMOSE by third-parties.”

B. “[N]ot to disclose to anyone any confidential information, trade secrets, or other IP RIGHTS about the ASSIGNED ASSETS, including any disclosures in an academic setting or any disclosures in scientific or other journals or other publications.”

C. To “immediately cease communications with third parties about the ASSIGNED ASSETS, and [to] refer all inquiries to BONUMOSE in a timely manner[.]”

D. CFB also will obtain from current or former employees other than ZHANG an express written assignment to CFB of all of the respective assignee’s right, title and interest to the ASSIGNED ASSETS, if any, which rights CFB hereby assigns, or will assign, as the case may be, to BONUMOSE

E. CFB represents and warrants that it has title and ownership interest in the ASSIGNED ASSETS; and CFB and ZHANG represent and warrant that they are not aware of any third party rights in the ASSIGNED ASSETS, will defend BONUMOSE’s rights thereto, and will indemnify BONUMOSE against any third-party claims upon or regarding the ASSIGNED ASSETS that CFB or ZHANG knew or should have known.

F. CFB also will obtain from current or former employees other than ZHANG an express written assignment to CFB of all of the respective assignee’s right, title and interest to the ASSIGNED ASSETS, if any, which rights CFB hereby assigns, or will assign, as the case may be, to BONUMOSE.

G. For purposes of the ASSIGNED ASSETS, the ASSIGNMENT expressly includes the right of BONUMOSE to enforce the terms of any Business Protection Agreements between CFB and ZHANG, or between CFB and other employees.

71. The Bonumose Entities has taken and continues to take appropriate steps to protect the Tagatose Trade Secrets and confidential information it acquired from CFB.

72. Since signing the April 2016 Agreement, Bonumose Biochem independently developed additional trade secrets and confidential information relating to the Tagatose Invention.

73. The Bonumose Entities have invested considerable time and resources in commercializing the production methods and other findings relating to the Tagatose Invention.

74. Given the need and demand for low-cost Tagatose, the Tagatose Trade Secrets are extremely valuable.

75. After the signing of the April 2016 Agreement, Zhang was employed by the Tianjin Institute, while also maintaining his full professorship position at Virginia Tech and operating several federal grant projects. Zhang has a Tianjin Institute email address, and in some academic papers identifies his sole professional affiliation as being Tianjin Institute.

76. In violation of the obligations under the April 2016 Agreement, Zhang and CFB refused to have former CFB employees, including but not limited to former employee Chun You, execute the required assignment express written assignment to CFB of all of respective assignee's right, title and interest to the ASSIGNED ASSETS if any, which rights CFB was required to assigns to the Bonumose Entities.

77. In violation of obligations under the April 2016 Agreement, CFB failed to provide the Bonumose Entities the required Business Protection Agreements for all former employees, including, but not limited to the Business Protection Agreement for Chun You. CFB has

prevented the Bonumose Entities from enforcing the Business Protection Agreement against Chun You.

78. In violation of the obligations under the April 2016 Agreement, Zhang's Business Protection Agreement, and duties under statute and common law, and during a time in which the Provisional Patent Application remained unpublished, Zhang and CFB wrongfully provided the Tagatose Trade Secrets to the Tianjin Institute.

79. Subsequent to the April 2016 Agreement, CFB maintained the Tagatose Trade Secrets in tangible form, including, but not limited to hard paper copies of the Provisional Patent Application and drafts of the Provisional Patent Application and electronic copies of the Provisional Patent Application and drafts of the Provisional Patent Application and electronic copies emails from Dr. Wichelecki or others CFB employees containing the substance of the Tagatose Trade Secrets.

80. The circumstances indicate and on information and belief, Zhang and CFB received compensation or benefits from the Tianjin Institute in exchange for their wrongful disclosure of the Tagatose Trade Secrets.

81. On information and belief, to effectuate the wrongful transfer of the Tagatose Trade Secrets, Zhang and CFB provided the hard copy of the Provisional Patent Application, drafts of the Provisional Patent Application, electronic copies of the Provisional Patent Application or drafts of that document, or electronic copies of emails from Dr. Wichelecki or other CFB employees containing the substance of the Tagatose Trade Secrets to the Tianjin Institute or to other third-parties operating on the Tianjin Institutes' behalf. By wrongfully providing the Tagatose Trade Secrets in tangible form to others, Zhang and CFB cause significant damage to the Bonumose Entities.

82. In violation of obligations under the April 2016 Agreement, CFB has cooperated and assisted third-party competitors of the Bonumose Entities, including but not limited to the

Tianjin Institute and Virginia Tech Intellectual Properties (“VTIP”). CFB has coordinated with and cooperated with the Tianjin Institute in mounting legal defenses against the Bonumose Entities’ pursuit of its legal rights. On information and belief, the cooperation and assistance with the Tianjin Institute includes but is not limited to attorneys for CFB coordinating with agents for the Tianjin Institute to attack or challenge in legal proceedings, the coordination and sharing of information between attorneys for the Tianjin Institute, CFB, and Zhang. Further, on information and belief, Zhang and CFB are coordinating to with the Tianjin Institute of obtain funding for Zhang and CFB’s litigation in this Court. Contrary to legal obligations, Zhang and CFB through their legal counsel have filed pleadings and made public statements which disparage or call into question the value of the ASSIGNED ASSETS acquired by the Bonumose Entities in the April 2016 Agreement.

83. In September of 2016 Bonumose Biochem filed a Patent Cooperation Treaty patent application (“PCT Application”).

84. The Bonumose Biochem PCT Application covered the Tagatose Trade Secrets and listed China as one of the covered countries. In accordance with proper procedures, the Bonumose Biochem PCT Application was not immediately published; the information regarding the Tagatose Trade Secrets remained confidential despite the filing of the PCT Application.

85. In late October of 2016, Zhang and Zhiguag Zhu attended a conference in Tianjin and met with peers at the Tianjin Institute.

86. On November 1, 2016, Tianjin Institute filed a patent application for Tagatose production (“Tianjin Patent Application”) that is nearly identical to Bonumose Biochem’s Provisional Patent Application. At the time of the filing of the Tianjin Patent Application, Zhang and former CFB employees Zhiguang Zhu and Chun You all were employed by the Tianjin Institute and had received significant funds for and support from the Tianjin Institute for the

filing patents in China based on what appears to be intellectual property developed at CFB or using Virginia Tech, potentially based on funding received from federal grants.

87. Based on the timing and circumstances of Zhang's travel to Tianjin, the Bonumose Entities infer that Zhang on behalf of CFB meet with the Tianjin Institute and participated and assisted with the filing of the Tianjin Patent Application.

88. The Tianjin Patent Application lists two inventors by name, one of which is Dr. Yan-he Ma, the President of the Tianjin Institute, and a researcher collaborator of Zhang's. The Tianjin Patent Application also contains an unusual statement that "other inventors request an unlisted name."

89. On information and belief, Dr. Zhang is one the anonymous co-inventors for the Tianjin Patent Application.

90. On information and belief, Chun You is one of the anonymous co-inventors for the Tianjin Patent Application.

91. Under Chinese law, it is improper to list someone as a co-inventor unless they have made creative contributions to the substantive features of the invention. In turn, although he seeks to cover up his role by hiding his name from the face of the Chinese application, Zhang, by having himself listed as an anonymous co-inventor, is asserting a substantive role in the Tianjin Patent Application. As an anonymous co-inventor identified in the Tianjin Application, Zhang has breached contractual, statutory, and common law duties owed to the Bonumose Entities.

92. The Tianjin Patent Application was prepared using the Bonumose Entities' Tagatose Trade Secrets. The Tianjin Patent Application could not have been written without Tianjin Institute having the confidential, unpublished Provisional Patent Application or Tagatose Trade Secrets, the confidential or trade secret information underlying the Tagatose Invention. Given the nature of the confidential information, the Provisional Patent Application or drafts or

the Tagatose Trade Secrets were wrongfully provided to the Tianjin Institute in tangible form, either a hard copy or an electronic copy.

93. The Tianjin Patent Application included the same enzymatic pathway for Tagatose production invented by Dr. Wichelecki and found in the Provisional Patent Application, using the same enzymes. The drawings in the Tianjin Patent Application are nearly identical to the drawings in the Provisional Patent Application. The two key enzymes named in the Tianjin Patent Application are the exact same enzymes Dr. Wichelecki had discovered. In fact, Bonumose Biochem's Provisional Patent Application contained an error, which Bonumose Biochem later corrected. The Tianjin Patent Application replicates the error, clearly marking the Tianjin Patent Application as a copycat effort based on the confidential information disclosed by Defendants. The Tianjin Patent Application does not provide any significant, new information not contained in Bonumose Biochem's Provisional Patent Application.

94. Zhang and CFB wrongly concealed their misappropriation, the wrongful disclosure to the Tianjin Institute, and the Tianjin Patent Application from Bonumose Biochem. If Zhang or CFB had disclosed that the information had been provided to the Tianjin Institute, Bonumose could have accelerated its time table to file a patent application in China. Because the wrongful disclosure was concealed, Bonumose Biochem took no action to file in China while the Provisional Patent Application and Bonumose Biochem's PCT application remained confidential.

95. On or about April 6, 2017, the Bonumose Biochem PCT Application was published. The publication of the PCT application in April of 2017 marked the first time the Tagatose Trade Secrets were publicly disclosed with Bonumose Biochem's knowledge and authorization.

96. On or around April 13, 2017, Bonumose Biochem learned of the Tianjin Patent Application from a company that was a potential business partner of the Bonumose Entities.

97. Although the information contained in Bonumose Biochem's U.S. tagatose patent application is now public owing to publication of the PCT Application in April of 2017, the Bonumose Entities were damaged by the prior disclosure and use of the Tagatose Trade Secrets while that information was confidential. The wrongful disclosure of the Tagatose Trade Secrets gave the Tianjin Institute several months of advanced knowledge of confidential information, including, but not limited to, the enzymatic pathway discovered by Dr. Wichelecki.

98. The Bonumose Entities will suffer immediate and irreparable harm if Zhang and CFB are not enjoined from further use of the Tagatose Trade Secrets, further breaches of their non-disclosure obligations, further breaches of their non-competition obligation, and further breaches of their obligations to cease communications.

99. The Bonumose Entities will suffer immediate and irreparable harm if Zhang and CFB are not enjoined from competing with the Bonumose Entities in violation of the April 2016 Agreement, cooperating with third parties seeking to compete with the Bonumose Entities.

100. Legal remedies would be inadequate because without an injunction, Defendants and third-party Defendants could unlawfully compete in the market, producing Tagatose in contravention of the Bonumose Entities' patent and trade secret rights.

101. Zhang and CFB have caused, and will continue to cause, damages to the Bonumose Entities' business, business relationships, goodwill, and reputation.

**COUNT ONE
BREACH OF CONTRACT
(Zhang and CFB)**

102. The Bonumose Entities repeat and reallege the allegations set forth above as if fully stated herein.

103. Under the April 2016 Agreement, Zhang and CFB assigned and transferred all right, title and interest to a broad category of identified assets which included the Tagatose Trade Secrets and confidential information related to the Tagatose Invention.

104. Under the April 2016 Agreement, Zhang and CFB agreed not to compete against Bonumose with respect to the commercialization of Tagatose based on the Tagatose Trade Secrets. For clarification but not limitation, CFB and Zhang agreed they would not compete against or assist others in competing against Bonumose Biochem, or its successors, assigns or licensees, in the production of Tagatose from starch, sucrose, cellulose, or degradation products thereof.

105. The April 2016 Agreement requires Zhang and CFB not to disclose to anyone any confidential information, trade secrets, or other IP Rights about the Tagatose Trade Secrets, including any disclosures in an academic setting or any disclosures in scientific or other journals or other publications.

106. The April 2016 Agreement requires that Zhang and CFB defend Bonumose Biochem's rights to the trade secrets and confidential information, including the Tagatose Trade Secrets.

107. The April 2016 Agreement requires that Zhang and CFB shall immediately cease communications with third parties regarding the Tagatose Trade Secrets.

108. In exchange for these and other promises in the April 2016 Agreement, Bonumose Biochem issued to CFB common membership units in Bonumose Biochem and provided other valuable consideration.

109. CFB had certain, limited reversion rights under the April 2016 Agreement subject to Zhang and CFB not being in breach.

110. Zhang and CFB breached the April 2016 Agreement by disclosing the Tagatose Trade Secrets to the Tianjin Institute to assist the Tianjin Institute's efforts to compete with the Bonumose Entities regarding the commercialization of Tagatose.

111. Zhang and CFB breached the April 2016 Agreement by disclosing confidential information, including the Tagatose Trade Secrets, to the Tianjin Institute.

112. Zhang and CFB breached the April 2016 Agreement by failing to cease communications with third parties, including the Tianjin Institute, regarding the Tagatose Trade Secrets

113. Zhang and CFB breached the April 2016 Agreement by cooperating with third-parties in competition with the Bonumose Entities, including but not limited to, cooperating with the Tianjin Institute in defense of legal proceedings in this Court and in the PRC and in receiving financial support from the Tianjin Institute in defense of the litigation in this Court.

114. Zhang and CFB breached the April 2016 Agreement by cooperating with third-parties in competition with the Bonumose Entities, including but not limited to, cooperating with the VTIP and advising VTIP on licensing negotiations with Bonumose Biochem.

115. Zhang and CFB failed to indemnify relating to the Tianjin Patent Application, breaching the April 2016 Agreement.

116. Zhang and CFB breached by failing to obtain the necessary assignments from former CFB employees.

117. Zhang and CFB breached the April 2016 Agreement by making warranties the know were false.

118. The April 2016 Agreement contains an implied covenant of good faith and fair dealing.

119. Zhang and CFB are in breach of the express terms of the April 2016 Agreement.

120. Zhang and CFB are in breach of the implied covenant of good faith and fair dealing in the April 2016 Agreement.

121. The Bonumose Entities have complied with all of its obligations under the April 2016 Agreement.

122. Owing to its breaches, CFB does not have reversionary rights.

123. Because of the breaches by Zhang and CFB, the Bonumose Entities have been damaged, and its ongoing efforts to commercialize its technology and its business prospects have diminished.

124. The Bonumose Entities have been injured in an amount in excess of any applicable jurisdictional amount, an amount to be proven at trial.

125. The Bonumose Entities are entitled to an injunction enjoining Zhang and CFB from further use of the Tagatose Trade Secrets or other confidential information, and from further acts related to the Tagatose Invention.

COUNT TWO
MISAPPROPRIATION OF TRADE SECRETS
VIRGINIA UNIFORM TRADE SECRETS ACT (“VUTSA”)
VA. CODE ANN. § 59.1-336 – 59.1-343
(Zhang and CFB)

126. The Bonumose Entities repeat and realign the allegations set forth above as if fully stated herein.

127. The Bonumose Entities are persons within the meaning of Va. Code Ann. § 59.1-336 and is entitled to bring this action under VUTSA.

128. The Tagatose Trade Secrets are trade secrets within the meaning of Va. Code Ann. § 59.1-336.

129. The Tagatose Trade Secrets required substantial time, effort, and expense to develop.

130. The Tagatose Trade Secrets were sufficiently secret to derive economic value, actual or potential, from not being generally known to other persons who can obtain economic value from their disclosure or use. During the time of the wrongful conduct, this information was not readily available from any one public source and would not be readily ascertainable through proper means by those outside of Bonumose.

131. Reasonable efforts have been made to maintain the secrecy and confidentiality of the trade secrets.

132. Zhang and CFB have misappropriated the Tagatose Trade Secrets by disclosing and/or using the trade secrets without Bonumose Biochem's express or implied consent. Disclosure and/or use of the trade secrets are expressly prohibited under the April 2016 Agreement, to which Zhang and CFB are parties. At the time of the disclosure and/or use of the trade secrets, Zhang and CFB knew or had reason to know that they owed a duty to Bonumose Biochem to maintain secrecy or limit the use of the trade secrets.

133. Upon information and belief, Zhang and CFB intended to cause Bonumose Biochem actual or constructive harm through their acquisition of the Tagatose Trade Secrets through improper means. Zhang's and CFB's conduct constitutes willful and malicious conduct under the VUTSA.

134. Zhang's and CFB's misappropriation of the Tagatose Trade Secrets has caused, and will continue to cause, irreparable harm and damages to Bonumose Biochem's business, business relationships, goodwill, and reputation. Bonumose Biochem may recover the damages arising out of Zhang's and CFB's misconduct. Bonumose Biochem may also recover punitive damages. Bonumose Biochem has been damaged in an amount to be proven at trial.

135. The Bonumose Entities are entitled to an injunction enjoining Zhang and CFB from further use of the Tagatose Trade Secrets or other confidential information related to the Tagatose Invention.

136. In addition, the Bonumose Entities have expended, and will continue to expend attorneys' fees and costs to remedy the misappropriation of trade secrets, which are recoverable under the VUTSA.

COUNT THREE
MISAPPROPRIATION OF TRADE SECRETS
DEFEND TRADE SECRETS ACT
18 U.S.C. §§ 1831 – 1839
(Zhang and CFB)

137. The Bonumose Entities repeat and realign the allegations set forth above as if fully stated herein.

138. The Tagatose Trade Secrets are trade secrets within the meaning of 18 U.S.C. § 1839.

139. The Tagatose Trade Secrets are related to a product intended for use in interstate or foreign commerce.

140. The Tagatose Trade Secrets required substantial time, effort, and expense to develop.

141. The Tagatose Trade Secrets were sufficiently secret to derive economic value, actual or potential, from not being generally known to other persons who can obtain economic value from their disclosure or use. During the time of the wrongful conduct, this information was not readily available from any one public source, and would not be readily ascertainable through proper means by those outside of Bonumose Biochem.

142. Reasonable efforts have been made to maintain the secrecy and confidentiality of the trade secrets.

143. CFB and Zhang have misappropriated the Tagatose Trade Secrets by:

a. Disclosing and/or using the trade secrets without Bonumose Biochem's express or implied consent. Disclosure and/or use of the trade secrets are expressly prohibited under the April 2016 Agreement, to which CFB and Zhang are parties. At the time of the disclosure and/or use of the trade secrets, CFB and Zhang knew or had reason to know that they owed a duty to Bonumose Biochem to maintain secrecy or limit the use of the trade secrets.

b. Copying, downloading, uploading, replicating, transmitting, communicating, conveying, receiving, buying, and/or possessing Bonumose Biochem's trade

secrets. At the time of such conduct, CFB and Zhang intended or knew that their conduct would benefit the Chinese government, an instrumentality of the Chinese government, and/or an agent of the Chinese government.

c. Conspiring with each other and third parties to engage in the conduct described in subsections (a) and (b). At the time of such conspiracy, CFB and Zhang intended or knew that its conduct would benefit the Chinese government, an instrumentality of the Chinese government, and/or an agent of the Chinese government.

144. Zhang's and CFB's misappropriation of Bonumose Biochem's trade secrets has caused, and will continue to cause, irreparable harm and damages to Bonumose Biochem's business, business relationships, goodwill, and reputation. The Bonumose Entities may recover the damages arising from Zhang's and CFB's misconduct. The Bonumose Entities may also recover exemplary damages. The Bonumose Entities have been damaged in an amount to be proven at trial.

145. Zhang and CFB willfully and maliciously misappropriated the Bonumose Entities' trade secrets.

146. The Bonumose Entities are entitled to an injunction enjoining Zhang and CFB from further use of the Tagatose Trade Secrets or other confidential information related to the Tagatose Invention.

147. In addition, the Bonumose Entities have expended, and will continue to expend attorneys' fees and costs to remedy the misappropriation of trade secrets, which are recoverable under 18 U.S.C. § 1836.

**COUNT FOUR
CONVERSION
(Zhang and CFB)**

148. The Bonumose Entities repeat and reallege the allegations set forth above as if fully stated herein.

149. Bonumose Biochem owned (and owns) the hard copies of the Provisional Patent Application and drafts and the electronic copies of the Provisional Patent Application and drafts and the correspondence relating to the Tagatose Invention which required for the production of Tagatose.

150. At the time Bonumose Biochem owned this information, Zhang and CFB acted inconsistent with Bonumose Biochem's rights. Zhang and CFB wrongfully exercised dominion or control over hard copies and electronically stored copies of the Provisional Patent Application, draft of the Provisional Patent Application, electronic copies of emails and other communications related to the Tagatose Invention which reveal the Tagatose Trade Secrets, inconsistent with Bonumose Biochem's rights.

151. Zhang and CFB wrongfully provided the tangible goods containing the Tagatose Trade Secrets to Tianjin.

152. Owing to Zhang and CFB wrongful conversion of Bonumose Biochem's property, the Tianjin Institute filed its Tianjin Patent Application.

153. The wrongful conversion by Zhang and CFB proximately harmed Bonumose Biochem by causing the Tianjin Patent Application to be filed which has caused the Bonumose Entities to incur costs to address the filing and has delayed and increased the cost of the Bonumose Entities' commercialization of Tagatose.

154. Zhang and CFB acted with willful or wanton disregard for the Bonumose Entities' rights. Such conduct was malicious and warrants an award of punitive damages.

155. The conduct of Zhang and CFB caused and will continue to cause irreparable harm and damages to the Bonumose Entities' business, business relationships, goodwill, and reputation. The Bonumose Entities have been damaged in an amount to be proven at trial.

156. The Bonumose Entities are entitled to an injunction enjoining Zhang and CFB from further use of the tangible property containing the Tagatose Trade Secrets or other confidential information related to the Tagatose Invention.

**COUNT FIVE
BREACH OF CONTRACT
(Zhang)**

157. The Bonumose Entities repeat and reallege the allegations set forth above as if fully stated herein.

158. Zhang breached his obligations to CFB under the CFB Business Protection Agreement, including but not limited to, his obligations to not to compete with CFB and not to disclose confidential CFB information.

159. The April 2016 Agreement expressly gave Bonumose Biochem the right to enforce CFB's rights under the Business Protection Agreement in the event of breaches by Zhang.

160. Because of the breaches by Zhang, the Bonumose Entities have been damaged.

161. The Bonumose Entities have been injured in an amount in excess of any applicable jurisdictional amount, an amount to be proven at trial.

**COUNT SIX
FRAUD IN THE INDUCEMENT-CONCEALMENT
(Zhang and CFB)**

162. The Bonumose Entities repeat and reallege the allegations set forth above as if fully stated herein.

163. Zhang and CFB concealed material facts, including but not limited to:

A. the fact that Zhang had been acting concurrently acting as an unregistered agent for the Tianjin Institute since at least 2014;

B. the fact that Zhang and CFB had no intent to live up to their obligations under the April 2016 Agreement;

C. in the alternative, the fact that Zhang and CFB had disclosed the Tagatose Trade Secrets to the Tianjin Institute prior to the signing of the April 2016 Agreement .

164. Zhang and CFB had a duty to disclose the concealed facts.

165. Bonumose Biochem relied on the wrongful concealment.

166. Bonumose Biochem was wrongly induced to enter into the April 2016 Agreement owing to the concealment.

167. Zhang and CFB acted with willful or wanton disregard for Bonumose Biochem's rights. Such conduct was malicious and warrants an award of punitive damages.

168. Exclusive of the punitive damages, the Bonumose Entities have been injured in an amount in excess of any applicable jurisdictional amount, an amount to be proven at trial.

**COUNT SEVEN
FRAUDULENT - CONCEALMENT
(Zhang and CFB)**

169. The Bonumose Entities repeat and reallege the allegations set forth above as if fully stated herein.

170. Zhang and CFB concealed material facts, including but not limited the fact that subsequent to the signing of the April 16, 2016 Agreement, Zhang and CFB provided the Tagatose Trade Secrets to the Tianjin Institute.

171. Zhang and CFB had a duty to disclose the concealed facts.

172. The Bonumose Entities relied on the wrongful concealment, including but not limited to, making payments to Zhang and CFB under the April 2016 Agreement which should not have been paid owing to Zhang and CFB's breaches and wrongful conduct.

173. The Bonumose Entities suffered damages as a result of the concealment.

174. Zhang and CFB acted with willful or wanton disregard for the Bonumose Entities' rights. Such conduct was malicious and warrants an award of punitive damages

175. Exclusive of the punitive damages, the Bonumose Entities have been injured in an amount in excess of any applicable jurisdictional amount, an amount to be proven at trial.

PRAYER FOR RELIEF

WHEREFORE, plaintiff requests entry of judgment in its favor and against Defendants as follows:

- A. An award of damages to the Bonumose Entities, including but not limited to compensatory damages, punitive damages, and/or exemplary damages;
- B. An award of pre-judgment interest and post-judgment interest on the damages awarded;
- C. Issuance of preliminary and permanent injunctions enjoining Zhang and CFB from further use of the Tagatose Trade Secrets or other confidential information related to the Tagatose Invention;
- D. A declaration that (1) Zhang and CFB breached their obligations under the April 2016 Agreement not later than November 1, 2016, and (2) the Bonumose Entities owes no further duties to CFB, including, but not limited to, obligations to make further payments to CFB.
- E. Such other and further relief as the Court deems just.

Plaintiff demands trial by jury.

Dated this ____ day of August, 2018.

/s/ Erik F. Stidham

Erik F. Stidham, Admitted *Pro Hac Vice*

HOLLAND & HART ^{LLP}

800 W. Main Street, Suite 1750

P.O. Box 2527

Boise, ID 83701-2527

Phone: (208) 342-500

Facsimile: (208) 343-8869

E-mail: efstidham@hollandhart.com

Hope Hamilton, VSB #65521

HOLLAND & HART ^{LLP}
One Boulder Plaza
1800 Broadway, Suite 300
Boulder, CO 80302
Phone: (303) 473-4822
Facsimile: (303) 416-8842
E-mail: hihamilton@holladhart.com

Michael J. O'Leary, Admitted *Pro Hac Vice*
HOLLAND & HART ^{LLP}
975 F Street NW, Suite 900
Washington, D.C. 20004
Tel: (202) 393-6500
E-mail: mjoleary@hollandhart.com

John S. Martin (VSB No. 34618)
Joshua P. Hanbury (VSB No. 78550)
Brian A. Wright (VSB No. 82827)
HUNTON ANDREWS KURTH LLP
Riverfront Plaza, East Tower
951 East Byrd Street
Richmond, VA 23219-4074
Telephone: (804) 788-8517
Facsimile: (804) 343-4912
Email: martinj@huntonak.com
Email: jhanbury@huntonak.com
Attorneys for Plaintiff

CERTIFICATE OF SERVICE

I hereby certify that on this ____ day of August, 2018, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system which will send notification of such filing to the following:

Joshua F.P.Long
Woods Rogers PLC
P.O. Box 14125
Roanoke, VA 24038-4125
Telephone: (540) 983-7725/ Fax: (540) 983-7711

jlong@woodsrogers.com

Nathan A. Evans
Woods Rogers PLC
123 East Main Street, Suite 500
Charlottesville, VA 22902
Telephone: (434) 220-6829 / Fax: (434) 220-5687

nevans@woodsrogers.com

James Hopenfeld (Admitted *Pro Hac Vice*)
Evan Budaj (Admitted *Pro Hac Vice*)
Douglas S. Tilley
Singer/Bea LLP
601 Montgomery Street, Suite 1950
San Francisco, CA 94111
Telephone: (415) 500-6080

jhopenfeld@singerbea.com
ebudaj@singerbea.com
Dtilley@singerbea.com

/s/ Erik F. Stidham

Erik F. Stidham, Admitted *Pro Hac Vice*
HOLLAND & HART ^{LLP}
800 W. Main Street, Suite 1750
P.O. Box 2527
Boise, ID 83701-2527

Attorney for Plaintiff/Counterdefendant